



# Goal: Maintain a High Standard and Modernize Maryland's Multimodal Transportation System

Preserve, maintain and modernize the State's existing transportation infrastructure and assets

## OBJECTIVES:

- **Preserve and maintain State-owned or funded roadways, bridges, public transit, rail, bicycle and pedestrian facilities, ports, airports and other facilities in a state of good repair**
- **Strategically modernize infrastructure through new and innovative technology, enhanced partnerships, design standards and practices to facilitate the movement of people and goods**
- **Use asset management to optimize public investment and ensure the sustainability of transportation infrastructure**

Poorly maintained roads constrain mobility, increase crash rates and can hinder economic growth and development. As such, MDOT is committed to preserving and maintaining Maryland's State-owned or funded roadways, bridges, public transit, rail, bicycle and pedestrian facilities, ports, airports and other facilities. In the CTP FY 2019–FY 2024, \$6.2 billion is allocated for safety, congestion relief, highway and bridge projects, and \$288.5 million for rail and bus maintenance, making maintenance for roadways, bridges, rail and buses significant priorities.

Preservation and maintenance asset management is also a priority of MDOT SHA and MDTA. By the end of 2018, MDOT SHA reached the halfway point of resurfacing or treating all State Highway lane miles. Nearly 8,500 lane miles have been improved since 2015, bringing 88% of Maryland roadways up to acceptable overall pavement condition, improving safety and enhancing the customer experience for millions of drivers across the State. As good stewards of public transportation assets, MDOT looks to utilize asset management techniques to ensure the sustainability of transportation infrastructure. MDOT SHA uses Automated Road Analyzer (ARAN) vehicles to collect data to help evaluate all highways each year, and has invested \$890 million to extend the



life of State roadways, reducing pothole-ridden and deteriorated lanes. In 2018, the new Dover Bridge along MD 331 opened a full year ahead of schedule. Most notably by the end of FY 2017 all 69 structurally deficient bridges identified in 2015 by the Governor have been addressed.

At the Port of Baltimore, MDOT MPA updated and received approval of the State's Dredged Material Management Program (DMMP); this program is critical to maintain the 50-foot deep marine channels and berth at Seagirt Marine Terminal. MDOT MPA also initiated planning for a second 50-foot deep berth at Seagirt Marine Terminal due to increasing containerized cargo growth.

Technological advancements have the ability to change the landscape of the transportation network and can place Maryland in a strategic position for growth nationally. MDTA is advancing tolling and customer service technologies that will replace its existing toll collections system. Maryland has made connected and automated vehicle (CAV) permits available for testing to ensure the State remains on the forefront and is prepared as this technology advances. MDOT MVA is working to address licensing and registration issues for CAVs and actions of the Maryland CAV Statewide Working Group have led to a centralized resource for the private sector to research and develop new technology.



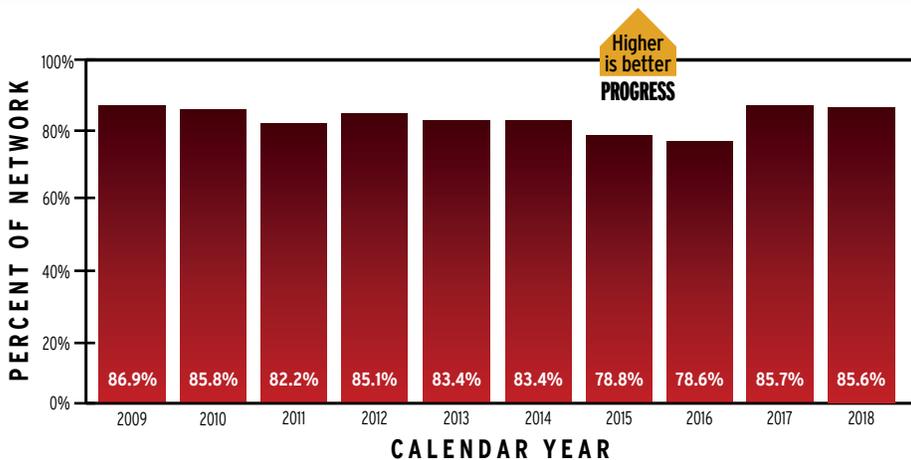
## OBJECTIVE:

Preserve and maintain State-owned or funded roadways, bridges, public transit, rail, bicycle and pedestrian facilities, ports, airports and other facilities in a state of good repair

### PERCENTAGE OF THE MDOT SHA NETWORK IN OVERALL PREFERRED MAINTENANCE CONDITION



The overall condition of the network reflects how well asset management strategies, operational improvements and technology have sustained the quality and safety of existing highways.



Target: 85% Annually

#### Why Did Performance Change?

- The past two relatively light winters did not cause as much damage as in recent years, and allowed maintenance forces to catch up on deferred work from prior years, such as sign maintenance, pavement markings, line striping, guardrail repair, brush and tree cutting and drainage work

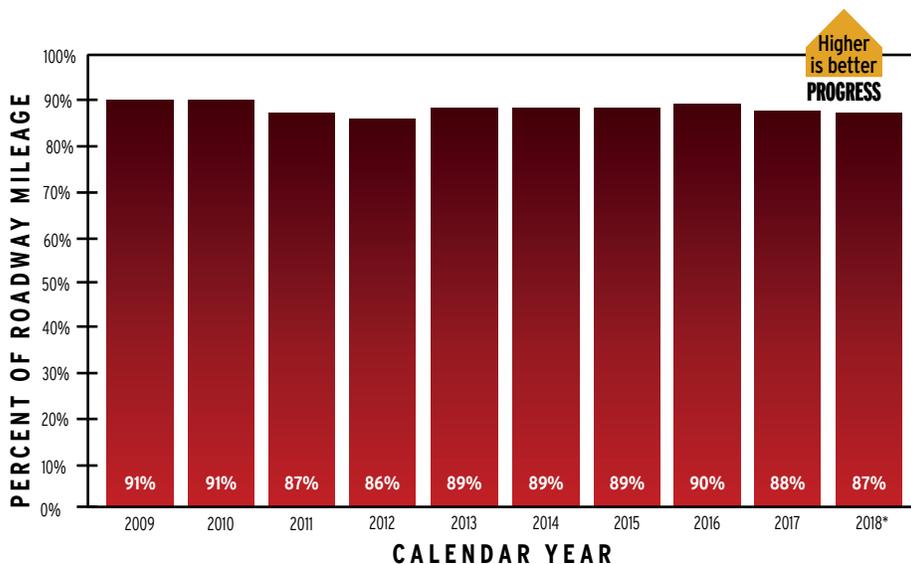
#### What Are Future Performance Strategies?

- Maintain focus for additional work efforts on safety-related assets, such as signs, pavement markings, line striping, guardrail repair, and brush and tree cutting
- Evaluate the efficiency and effectiveness of many of the maintenance programs and policies
- Continue to collaborate with the finance office and the procurement and contract management office to ensure additional work can be performed on assets falling below the desired maintenance condition

### OVERALL ACCEPTABLE PAVEMENT CONDITION



Overall pavement condition is based on remaining service life. MDOT completes annual road inspections on most Maryland State-owned roadways. Quality pavement facilitates mobility, efficiency and safe movement of people and goods within Maryland and has been identified as a priority for the public.



Target: 90% Annually

\* 2018 data is preliminary and subject to change.

#### Why Did Performance Change?

- MDOT SHA continued focusing on improvements in roadways with deficient condition
- MDOT SHA increased use of non-traditional pavement preservation treatments; cracking (a significant cost driver) has been reduced, decreasing maintenance costs and increasing surface quality

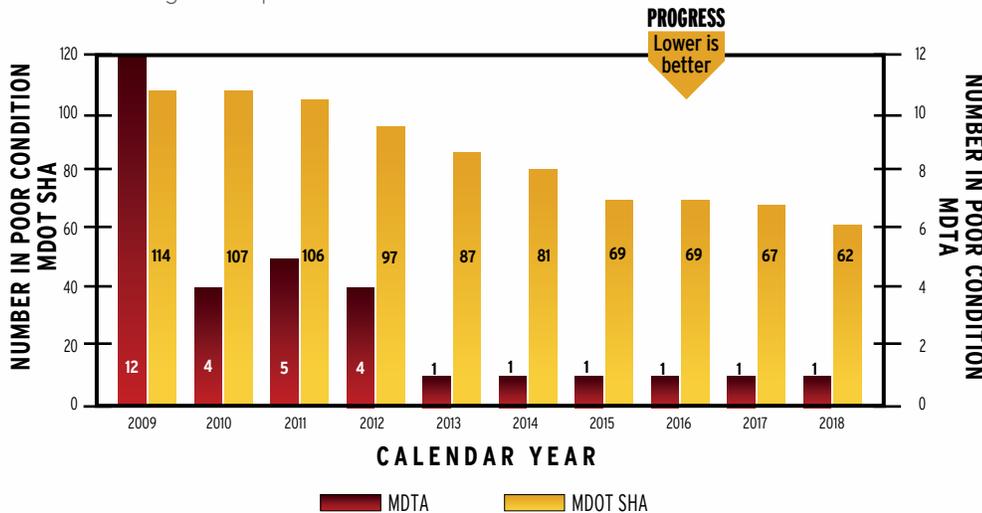
#### What Are Future Performance Strategies?

- Increase the use of more durable materials in high-demand MDOT SHA roadways and investigate alternative pavement treatments to extend the pavement life
- Target low surface friction locations on MDOT SHA roadways and expand the use of recycled materials
- Continue to implement the Pavement Preservation Program
- Continue to focus on higher-priority prevention and maintenance

## NUMBER OF BRIDGES & PERCENT THAT ARE IN POOR CONDITION



The poor condition rating (also referred to as structurally deficient) is an indicator for engineers to initiate the rehabilitation or replacement process, and is used when prioritizing and recommending system preservation funding. The rating applies to three main elements of a bridge: 1) deck (riding surface); 2) superstructure (main supporting element of the deck); and 3) substructure (supports to hold up the superstructure and deck). These elements are rated on a scale from 0 (closed to traffic) to 9 (relatively new). If any of the three elements is rated as a four or less, the bridge is categorized as structurally deficient by federal standards. This does not mean that the bridge is unsafe; if a bridge becomes unsafe, it is closed. The MDOT Transportation Business Units (TBUs) place a high priority on bridge programs, as impassable bridges can cause significant rerouting of traffic and congestion delay and in rural areas, closed bridges can create significantly longer travel distances for rural communities' daily activities and commutes. MDOT MAA has 19 bridges, none of the MDOT MAA bridges are in poor condition.



### Why Did Performance Change?

- MDOT SHA continued an aggressive bridge rehabilitation and preservation program, which has over 30 contractor construction crews working full time year-round, addressing bridges rated as poor, minimizing the number of bridges that would have deteriorated to a poor rating without rehabilitation
- MDOT SHA efficiently and economically used all funding received
- MDTA overhauled and enhanced its inspection program to better identify, report and address inspection findings and moved toward a system-wide preventative maintenance and preservation focus; emphasis over the next few years will be an advanced response to needs identified in the annual inspection reports
- MDTA developed and implemented the comprehensive Facility Inspection Program Strategic Plan and completed a comprehensive inspection manual specific to the MDTA facilities, continued use of an integrated facility management software and continued needed preservation improvements to all facilities, changes that resulted in significant improvements to the MDTA infrastructure

### What Are Future Performance Strategies?

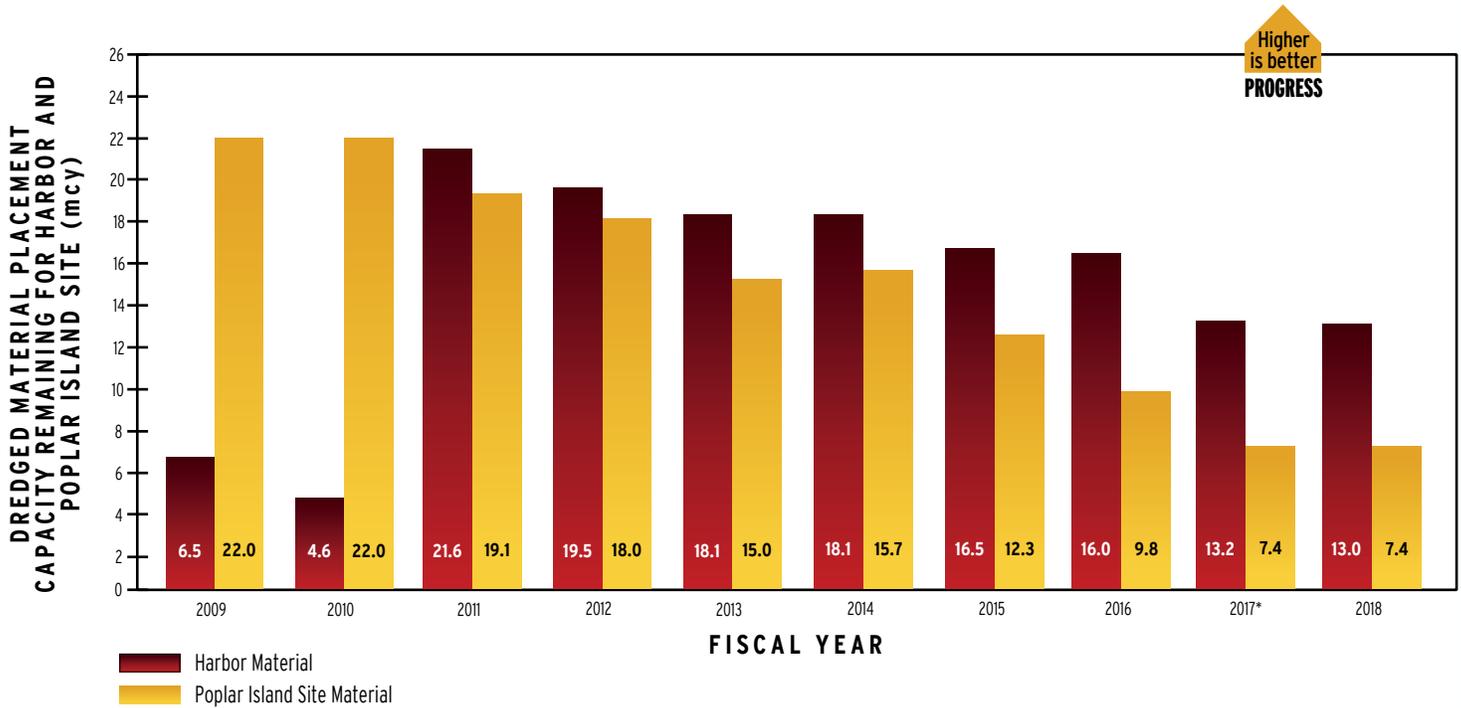
- Perform immediate structural evaluations, including scour evaluations, on water crossings after local storm events in the area of the storm
- Prioritize projects that will increase weight ratings on bridges with current weight restrictions
- Evaluate, monitor and prioritize those bridges with a rating of 5 (fair condition) in at least one main element
- Continue to deliver high-priority system preservation projects, such as: multi-facility structural steel painting projects and suspension span rehabilitation on the Bay Bridge
- Continue preliminary engineering of the Nice Bridge replacement project and continue to fund, design and perform high-priority structural repairs based on annual inspection report findings
- Continue to expand the current system preservation program to include preventative maintenance activities
- Focus on higher-priority prevention and maintenance projects



# DREDGED MATERIAL PLACEMENT CAPACITY REMAINING FOR HARBOR SITES AND POPLAR ISLAND



MDOT MPA is responsible for obtaining dredged material placement sites. Maintained and improved shipping channels provide safe, unimpeded access to the Port.



**Harbor Target:** Maintain a rolling 20-year plan for adequate dredged material placement capacity  
**Poplar Island Target:** Maintain a rolling 20-year plan for adequate dredged material placement capacity

## Why Did Performance Change?

- The State's Dredged Material Management Program (DMMP) continued to support the Corps' Federal DMMP
- Initiated planning for a second 50-foot deep berth at Seagirt Marine Terminal due to increasing cargo growth that requires additional dredging
- Completed the design, permitting and procurement of the base dike necessary for the Stage 1 expansion of the Cox Creek Dredged Material Containment Facility
- Pearce Creek was successfully reactivated by the U.S. Army Corps of Engineers and received the first inflow of dredged material
- Performed maintenance dredging near the Dundalk Marine Terminal

## What Are Future Performance Strategies?

- Ensure adequate placement capacity is available to meet dredging demand, removing channel restrictions and improving the navigation system
- Construct the Poplar Island Environmental Restoration Project expansion to provide additional placement capacity
- Continue with strategic public communication for the DMMP
- Maintain shipping channels utilizing the \$497.3 million included in the CTP FY 2019-FY 2024 to implement the Governor's Strategic Plan for Dredged Material Management
- Begin permitting and design for a second 50-foot berth at Seagirt, including a deeper and wider Seagirt Loop Channel to accommodate larger vessels
- MDOT MPA will commence numerous construction efforts to address dredged material placement
- Begin construction of the dike raising at Masonville



## TRANSIT ROLLING STOCK WITHIN USEFUL LIFE BENCHMARK



The transit rolling stock within useful life benchmark is used to understand the condition of transit vehicles. The amount of stock within useful life informs the agency of the needs and expected repairs or replacements.

TRANSIT VEHICLES	2018 PERCENT OF VEHICLE STOCK WITHIN USEFUL LIFE	TARGETS
Baltimore Metro	0%	11%
MARC	97%	100%
Light Rail	100%	100%
Paratransit	51%	99%
Core Bus	100%	98%

### Why Did Performance Change?

- Asset Management is now officially a part of the organizational chart; MDOT MTA has an intranet page that shows details on Asset Portfolio, Condition Data, Transportation Emission Reduction measures (TERMs) Analysis and the Asset Management Program in general
- After monitoring the guideway performance for the past 18 months, MDOT MTA now has a dashboard that streamlines the data flow and has a user-friendly interface
- Began visually assessing the condition of MDOT MTA and Locally Operated Transit System (LOTS) facilities
- Initiated a pilot Asset Management Program at Eastern Bus garage including visually collecting inventory data and conducting condition assessments on sample inventory
- Initiated a Warranty Management program at Bus; improving Warranty Management was one of the key objectives highlighted in the MDOT MTA Transit Asset Management Plan

### What Are Future Performance Strategies?

- MDOT MTA will develop a comprehensive asset management program to better track and extend useful life of our facilities and vehicles
- 2018 will be the first year Federal Transit Administration (FTA) requires asset management compliance reporting through the National Transit Database (NTD)
- MDOT MTA is awaiting delivery of a replacement fleet of Metro SubwayLink cars beginning around 2020 that will change the percent from that 0% to 100%

## OBJECTIVE:

Strategically modernize infrastructure through new and innovative technology, enhanced partnerships, design standards and practices to facilitate the movement of people and goods

## AVERAGE TRUCK TURN TIME AT SEAGIRT MARINE TERMINAL



Truck turn times are a measure of the efficiency and operations of the Seagirt Marine Terminal. Reducing turn times improves throughput capacity and results in incremental environmental benefits. Truck turn time is very important to drivers, shipping companies and cargo owners and demonstrates the level of efficiency of moving freight off the terminal and into the broader economy.

For security purposes, each truck is required to have a registered radio-frequency identification (RFID) tag in order to enter Seagirt. When a truck turns off of Broening Highway toward the gate, the RFID tag is read by the scanner, which starts measuring that truck's turn time, and it is pinged again in the same location when that truck exits the terminal. The time between the first scan of the RFID tag on entering and the second scan on exiting is the total turn time for that truck. In 2018, the average truck turn around time was 89 minutes.

### Why Did Performance Change?

- With the expansion of the Panama Canal, vessel sizes and cargo volumes continue to increase, resulting in higher truck turn times due to a corresponding increase in gate and terminal processing activity
- RFID tags were distributed to truck drivers for better tracking of their processing times
- Six new rubber-tired gantry (RTG) cranes were delivered in 2018 and placed in service to improve efficiency
- Improved planning to maintain adequate staffing levels on heavy cargo volume days
- Provided full terminal Wi-Fi coverage to monitor terminal activity
- Started operations at an off-dock chassis depot to relieve congestion at the terminal

### What Are Future Performance Strategies?

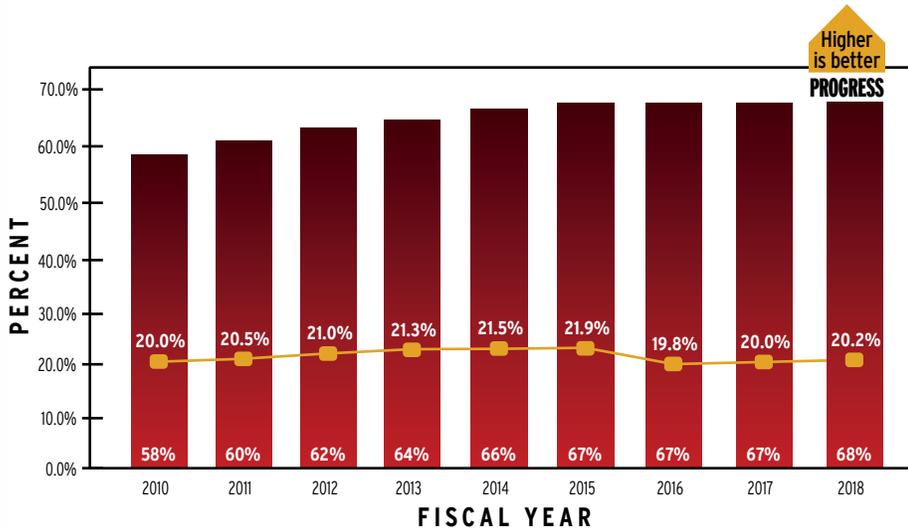
- Open an off-dock empty container yard to provide additional space
- Seek and obtain a United States Department of Transportation (USDOT) Infrastructure for Rebuilding America (INFRA) grant to allow double stack rail capability via CSX's Howard St. Tunnel and increase containers moving by rail to/from the Port
- Open five inbound lanes at the Vail Street back gate, install a new Terminal Operating System (TOS) and redevelop the 37-acres acquired at Point Breeze
- Continue the Quality Cargo Handling Team (Q-CHAT) to further improve containerized cargo handling
- Complete the second 50-foot deep berth at Seagirt Marine Terminal to accommodate larger ships and containerized cargo growth, and continue with planned technology enhancements



# PERCENTAGE OF STATE-OWNED ROADWAY DIRECTIONAL MILES WITHIN URBAN AREAS THAT HAVE SIDEWALKS AND PERCENT OF SIDEWALKS THAT MEET AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANCE



Available sidewalk facilities provide mobility for pedestrians. Tracking the percent that are ADA compliant helps ascertain whether Maryland's sidewalk program meets federal benchmarks.



■ Percentage of sidewalks that meet ADA compliance  
— Percentage of State-owned roadway directional miles within urban areas that have sidewalks

**Target:** Increase sidewalks in urban areas by 0.5% and ADA compliance by 2%, per year

## Why Did Performance Change?

- Invested \$3.4 million in FY 2019 to design and construct new sidewalks
- Invested \$6.1 million in FY 2019 to design and construct sidewalk improvements to address ADA accessibility
- Included improvements to existing sidewalks in all projects to the maximum extent practical

## What Are Future Performance Strategies?

- Collaborate with urban counties and local governments to identify new sidewalk projects
- Begin construction of sidewalk project in Crofton, MD in FY 2019
- Identify and prioritize critical ADA compliance projects
- Support safe pedestrian access along State Highways (\$35.7 million for the New Sidewalk Construction for Pedestrian Access Program and \$44.6 million for the Sidewalk Reconstruction for Pedestrian Access Program (ADA Compliance) in the CTP FY 2019-FY 2024)



## OBJECTIVE:

**Use asset management to optimize public investment and ensure the sustainability of transportation infrastructure**

MDOT is incorporating asset management programs with sustainability goals. Focusing on sustainability throughout the procurement, construction, operations, maintenance, renewal and replacement phases can enhance an asset's life and usefulness. MDOT strategically manages its diverse capital assets and each MDOT TBU maintains its physical assets according to policies that minimize life-cycle costs and avoids negative impacts on the delivery of transportation services. MDOT has created a Department Asset Management Program to inventory and monitor the condition and performance of assets and is investing in the National Highway System (NHS) to ensure longevity and good maintenance of those assets. MDOT is also developing asset management and Business Intelligence tools to aggregate and manage asset data, and to implement the short-term, midterm, and long-term strategies identified in the State Asset Management Plan to improve asset management and project selection across MDOT.

